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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,839	09/28/2006	Motoaki Kamachi	Q80934	3708

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
GOON, SCARLETT Y	
ART UNIT	PAPER NUMBER
1623	
MAIL DATE	DELIVERY MODE
03/30/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/594,839	KAMACHI ET AL.	
	Examiner	Art Unit	
	SCARLETT GOON	1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 February 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-7,10,11,14-16,19 and 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-7,10,11,14-16,19 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *28 September 2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to Applicants' Amendment and Remarks filed on 4 February 2009 in which claims 2, 3, 8, 9, 12, 13, 17 and 18 were cancelled, and claims 1 and 4 are amended to change the scope and breadth of the claims.

Claims 1, 4-7, 10, 11, 14-16, 19 and 20 are pending in the instant application and will be examined on its merits herein.

Information Disclosure Statement

Applicant has appropriately indicated that the "Arabinogalactan" reference that was cited on the IDS dated 28 September 2006, but not considered by the Examiner because an English translation was not submitted, was previously cited in the International Search Report filed on 26 September 2006. The International Search Report indicates the relevant portions of the article to the instant application, and thus provides sufficient information to be considered, even in the absence of an English translation (MPEP § 609.04(a)III). The "Arabinogalactan" reference has now been marked as considered. Applicant is requested to note that the other references on the IDS are crossed-out to prevent duplicate citations in the event the application is allowed.

Rejections Withdrawn

Applicant's amendment and Remarks, filed 4 February 2009, with respect to the rejections of claims 1-20 under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants

regard as the invention, have been fully considered and is persuasive because the claim as amended replaces the term "derivative," which had rendered the claims indefinite, with the term "compound".

These rejections have been **withdrawn**.

Applicant's amendment and Remarks, filed 4 February 2009, with respect to the rejections of claims 1-20 under 35 USC § 103(a), as being unpatentable over journal publication by Kasuya *et al.*, in view of PG Pub No. US 2002/00065328 A1 by Dederen *et al.*, have been fully considered and is persuasive because amended independent claim 1 specifically indicates that the multi-branched polysaccharide skeleton consists of the saccharides as indicated in instant claim 1, whereas the polysaccharides taught by Kasuya *et al.* include saccharides that are not anhydrosaccharides.

These rejections have been **withdrawn**.

In view of the cancellation of claims 2, 3, 8, 9, 12, 13, 17 and 18, all rejections made with respect to claims 2, 3, 8, 9, 12, 13, 17 and 18 in the previous Office Action are withdrawn.

These rejections have been **withdrawn**.

The following are new ground(s) or modified rejections necessitated by Applicants' amendment, filed on 4 February 2009, wherein the limitations in pending claim 1 as amended now have been changed; claims 2-20 depend from claim 1. The

limitations in the amended claims have been changed and the breadth and scope of those claims have been changed. Therefore, rejections from the previous Office Action, dated 4 September 2008, have been modified and are listed below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Section [0001]

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP2003-252904 by Kakuchi *et al.* (IDS dated 28 September 2006, machine translation) in view of PG Pub No. US 2002/00065328 A1 by Dederen *et al.* (of record).

Kakuchi *et al.* teach a method for manufacturing multi-branching polysaccharides which are obtained by polymerization in the presence of a cation or anion initiator and an anhydrosugar (p. 4, section 0003). The multi-branching polysaccharides are useful as a thickener in a biocompatible gel or a medically-based material (p. 3, section 0001). The anhydrosugars can be a 1,6-anhydrosugar, a 1,4-anhydrosugar, a 1,3-anhydrosugar, or a 1,2-anhydrosugar (p. 4). More specifically, the anhydrosugars can be 1,6-anhydro-β-D-glucopyranose, 1,6-anhydro-β-D-mannopyranose, 1,6-anhydro-β-D-galactopyranose, 1,6-anhydro-β-D-altropyranose, 1,4-anhydro-α-D-xylopyranose, 1,4-

anhydro-α-L-arabinopyranose, 1,4-anhydro-α-D-lyxopyranose, 1,3-anhydro-β-D-glucopyranose, 1,3-anhydro-β-D-mannopyranose, 1,2-anhydro-α-D-glucopyranose, 1,2-anhydro-β-D-mannopyranose, and 5,6-anhydro-α-D-glucopyranose (p. 4 and 5). The hydroxyl groups of the anhydrosugar may be substituted with OR wherein R is a hydrogen atom or a hydrocarbon having 1-30 carbon atoms (p. 3, claim 4). The degree of branching of the multi-branching polysaccharide is between 0.05 to 1.00 (p. 5, section 0005). The water-soluble multi-branching polysaccharide can be synthesized in high reproducibility in large quantities to enable their use as a functional material on an industrial scale (p. 7, section 0010). Furthermore, unlike natural polysaccharides, the molecular weight and degree of branching can be controlled (p. 7, section 0010).

Although Kakuchi *et al.* teach that the multi-branching polysaccharide is useful as a thickener in a biocompatible gel or as a medically-based material, the reference does not explicitly teach that the compound is used as an external preparation for the skin, or as a cosmetic. Furthermore, it is noted that Kakuchi *et al.* do not explicitly teach the limitations of claims 10 and 11, wherein the multi-branched polysaccharide is present in 0.1 to 80%.

Dederen *et al.* teach a personal care or cosmetic oil in water emulsion that includes an oil emulsifier and a combination of a Xanthan polysaccharide and a polyglucomannan polysaccharide to provide enhanced stability. Personal care products include cosmetic skin creams, lotion and milks (paragraphs 0002 and 0009). Polyglucomannan typically has a random glucose/mannose backbone, typically at a molar ratio of glucose to mannose in the range of about 1:1.5 to about 1:3, with various

acetylated groups (paragraph 0011). The molecular weight of useful polyglucomannans can vary within a typical range of from about $2x10^5$ to about $2x10^6$ (paragraph 0011). The amount of polysaccharide stabilizer used is from about 0.02% to about 0.5% by weight of the emulsion (paragraph 0018).

As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Kakuchi *et al.*, concerning a method for manufacturing multi-branching polysaccharides, with the teachings of Dederen *et al.*, regarding a personal care or cosmetic oil in water emulsion that includes an oil emulsifier and a combination of a Xanthan polysaccharide and a polyglucomannan polysaccharide to provide enhanced stability. One would have been motivated to combine the teachings in order to receive the expected benefit, as suggested by Kakuchi *et al.*, that the water-soluble multi-branching polysaccharide can be synthesized in high reproducibility in large quantities to enable their use as a functional material on an industrial scale (p. 7, section 0010), and that the molecular weight and degree of branching can be controlled (p. 7, section 0010), thereby providing homogeneous polysaccharide structures. Additionally, as Dederen *et al.* teach that polyglucomannan is highly heterogeneous, like most natural polysaccharides, one of ordinary skill in the art would be motivated to substitute the polysaccharides described by Dederen *et al.* with those described by Kakuchi *et al.*, in the preparation of a cosmetic composition, as the synthetic polysaccharides described by Kakuchi *et al.* are likely to yield more reproducible properties for the cosmetic composition than heterogenous natural polysaccharides.

Thus, the claimed invention as a whole is *prima facie* obvious over the combined teachings of the prior art.

Section [0002]

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP2003-252904 by Kakuchi *et al.* (IDS dated 28 September 2006, machine translation) in view of US Patent No. 6,197,319 B1 to Wang *et al.* (herein referred to as the '319 patent,of record).

The teachings of Kakuchi *et al.* were as described above in section [0001] of the claim rejections under 35 USC § 103.

Although Kakuchi *et al.* teach that the multi-branching polysaccharide is useful as a thickener in a biocompatible gel or a medically-based material, the reference does not explicitly teach that the compound is used as an external preparation for the skin, or as a cosmetic. Furthermore, it is noted that Kakuchi *et al.* do not explicitly teach the limitations of claims 10 and 11, wherein the multi-branched polysaccharide is present in 0.1 to 80%.

The Wang '319 patent teaches a cosmetic composition comprising a protein/polysaccharide complex. Polysaccharides are commonly incorporated into cosmetic compositions because they are known to be good humectants, film formers, and function as skin moisturizers (column 1, lines 14-16). Proteins are excellent film formers, conditioning agents, and moisturizers for hair and skin (column 1, lines 23-25). Thus, the Wang '319 patent teaches that it may be advantageous to make a

protein/polysaccharide complex as a means to overcome stability issues faced by proteins and polysaccharides in cosmetic products. Examples of anionic polysaccharides include galactans, galactomannans, glucomannans, and polyuronic acids (column 3, lines 39-44). A useful range of protein/polysaccharide complex in the cosmetic composition is in the range of 0.2-50% (column 6, lines 38-41).

As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Kakuchi *et al.*, concerning a method for manufacturing multi-branching polysaccharides, with the teachings of the Wang '319 patent, regarding the incorporation of polysaccharides into cosmetic compositions. One would have been motivated to combine the teachings in order to receive the expected benefit, as suggested by Kakuchi *et al.*, that the water-soluble multi-branching polysaccharide can be synthesized in high reproducibility in large quantities to enable their use as a functional material on an industrial scale (p. 7, section 0010). As a skilled artisan is well aware, natural polysaccharides are generally heterogeneous in structure and this heterogeneity can affect the polysaccharides properties. This heterogeneity is further suggested by Kakuchi *et al.* Thus, the polysaccharides described by Kakuchi *et al.* are advantageous because it can be made synthetically, such that the molecular weight and degree of branching can be controlled (p. 7, section 0010). Hence, since the Wang '319 patent teaches that polysaccharides are commonly incorporated into cosmetic compositions because they are known to be good humectants, film formers and function as skin moisturizers, one of ordinary skill in the art would reasonably conceive that the synthetic multi-branching polysaccharides described by Kakuchi *et al.*

would be more useful in a cosmetic preparation than natural polysaccharides as these polysaccharide compositions are homogenous in structure. Applicants are requested to note that although the Wang '319 patent teaches the use of a polysaccharide/protein complex in a cosmetic solution, a skilled artisan would also be motivated to use only the polysaccharide in a cosmetic solution as the Wang '319 patent teaches that polysaccharides are known to be good humectants, film formers, and function as skin moisturizers (column 1, lines 14-16).

With regards to the limitation wherein the multi-branched polysaccharide is present in 0.1 to 80%, the Wang '319 patent teaches that a useful range of protein/polysaccharide complex in the composition is in the range of 0.2-50% (column 6, lines 38-41). Hence, it would be *prima facie* obvious for one of ordinary skill to determine a useful range for the polysaccharide in the cosmetic composition. Moreover, it is considered within the capabilities of one of ordinary skill in the art to vary the polysaccharide concentration to determine its most optimal concentration.

Thus, the claimed invention as a whole is *prima facie* obvious over the combined teachings of the prior art.

Response to Arguments

Applicant's arguments filed 4 February 2009 with respect to the rejection of claims 1-20 made under 35 USC § 103(a) as being unpatentable over Kakuchi *et al.*, in view of the Wang '319 patent, have been fully considered but they are not persuasive.

Applicants argue that because the Wang '319 patent teaches that polysaccharides may tend to provide a heavy, sticky feeling on the skin and, when used in quantities sufficient to cause gelling, may provide products which are not aesthetically pleasing, one would not be motivated to combine the teachings because the Wang '319 patent suggests these are disadvantages for the use of polysaccharides in cosmetics. These arguments are not persuasive because, as indicated in the modified rejection above, the Wang '319 patent also teaches that polysaccharides are known to be good humectants, film formers, and function as skin moisturizers (column 1, lines 14-16). For these reasons in itself, one would have been motivated to use the polysaccharides disclosed by Kakuchi *et al.* in a cosmetic preparation. With regards to Applicants' argument, Applicants are requested to note that the Wang '319 patent teaches that "the polysaccharides may tend to provide a heavy, sticky feeling on the skin and, when used in quantities sufficient to cause gelling, may provide products which are not aesthetically pleasing". Thus, these described characteristics of polysaccharides in cosmetic compositions are not certain and absolute, and likely vary depending on the polysaccharide, and would therefore not necessarily dissuade an ordinarily skilled artisan from combining the teachings of the prior art to arrive at the claimed invention.

Applicants further argue that the properties of the polysaccharides of the instant invention provide unexpected effects in a skin preparation, such as "moisture feeling after the skin dried". These arguments are not persuasive because the moisturizing effect of polysaccharides in cosmetic preparations is well known in the art, as indicated in the Wang '319 patent. Furthermore, the instantly claimed polysaccharide is already

known in the art (Kakuchi *et al.*) and as indicated in section [0001] of the rejections above, one would have been motivated to substitute the polysaccharide disclosed by Kakuchi *et al.* with the polyglucomannans and Xanthan polysaccharide disclosed in the cosmetic composition of Dederen *et al.* since the Kakuchi *et al.* polysaccharide can be synthesized with a controlled molecular weight and degree of branching, thereby providing a homogenous polysaccharide with more defined properties, unlike the polyglucomannans and Xanthan polysaccharide which have a variable molecular weight which would likely result in differing properties for the cosmetic.

The rejection is still deemed proper and therefore adhered to, with several modifications to account for changes made to the amended claims.

Conclusion

In view of the rejections to the pending claims set forth above, no claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCARLETT GOON whose telephone number is 571-270-5241. The examiner can normally be reached on Mon - Thu 7:00 am - 4 pm and every other Fri 7:00 am - 12 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Shaojia Anna Jiang/
Supervisory Patent Examiner, Art Unit 1623

/SCARLETT GOON/
Examiner
Art Unit 1623